VERTICA

tdwi
TRANSFORMING DATA WITH INTELLIGENCE™

TDWI SOLUTION SPOTLIGHT

Developing a Strategy for Advancing Faster with Big Data Analytics

Dallas, Texas

August 1, 2017

TODAY'S AGENDA

- Philip Russom, TDWI
- Jeff Healey, HPE Vertica
- Daniel Gale, Simpli.fi
- Speaker Roundtable Discussion and Q&A

VERTICA

tdwi
TRANSFORMING DATA WITH INTELLIGENCE™

Getting from Here to There

Strategies for Increasing Maturity with Big Data Analytics

Philip Russom

Sr. Director of Research, Data Management

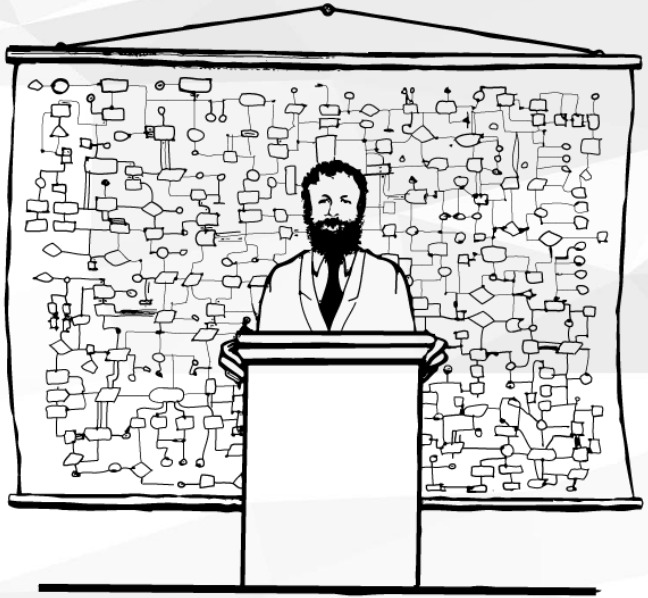
August 1, 2017

PHILIP RUSSOM

Senior Research Director for
Data Management,
TDWI

@prussom on Twitter

MY AGENDA

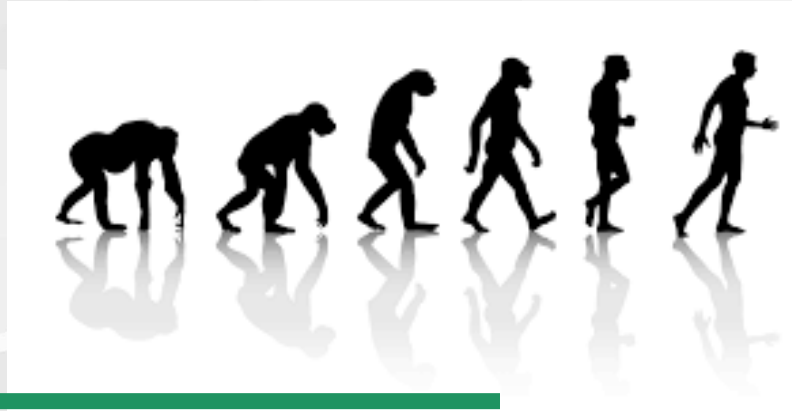


"Now that you have an overview of the system, we're ready for a little more detail"

- Trends and Drivers
  - For Big Data and Advanced Analytics
- Seven Strategies
  - For increasing maturity with Big Data and Advanced Analytics
- The 5 Ws
  - Of Data Warehouse Modernization

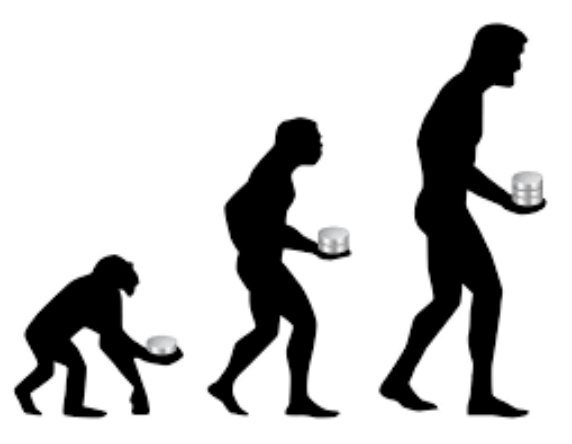
BACKGROUND

Big Data and Advanced Analytics



- Data is evolving. Analytics is, too.
- Data mgt & analytic methods are evolving.
- Business use & leverage of data is evolving.

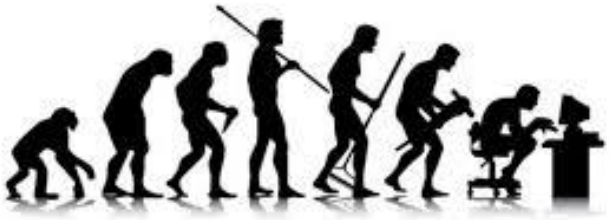
Data is Evolving



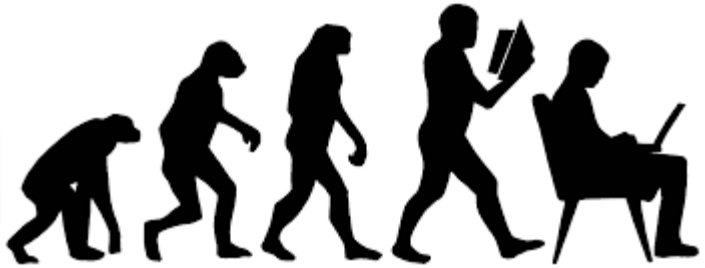
- Exploding data volumes
  - Big data is more than big:
    It's new to you, so there's a learning curve
  - Demands massive speed and scale from DM platforms, tools, and solutions
- Structural diversity
  - New sources, new formats, new targets
  - Wider range of ingestion & processing
- Generated more frequently
  - Demands event processing & real-time tech
  - Demands new biz monitoring practices

Data Management is Evolving

- Emerging practices
  - Data exploration, data prep, viz, discovery analytics, lakes, hubs
  - Self-service data access for users
- New data platforms
  - Columnar, appliances, Hadoop, NoSQL, graph databases
  - Hybrid multiplatform architectures

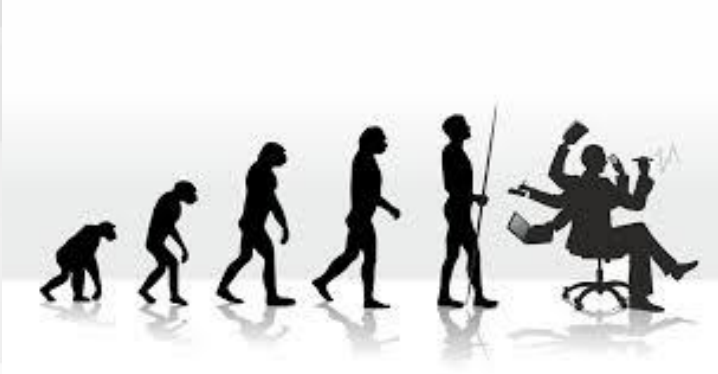


Analytic Methods are Evolving



- Brisk adoption of advanced forms
  - Predictive: Data mining, statistics, graph databases, R
  - Unstructured data: Text mining, natural language processing
  - Automatic analytic decisions: machine learning (ML), artificial intelligence (AI),
- Even so, traditional OLAP is not going away
  - Still relevant and valuable to many users
  - Investment is too big to rip out

Biz Use of Analytic Data is Evolving



- Decisions based on more and better facts
  - Great example: Single view of the customer or other biz entity
- Operations move faster, based on fresher data
- More competition based on analytics with massive data
- Ongoing modernization of businesses & their processes
  - Multichannel marketing, digital supply chain and logistics, real-time operations, machine learning assists w/decisions

THE NEXT WAVE OF BIG DATA AND ANALYTICS

The Internet of Things (IoT)

- **Sensors generate big data**:
  IoT enabling new perspectives on processes and potential for optimization
  - Telematics – sensors on vehicles, machinery, utility grid, shipping pallets
  - Predictive maintenance - analytics measures what *will* happen
  - Real-time analytics for fuel mgt, route selection, consolidating shipments, supply problems, operator behavior

TDWI RESEARCH

Many Org's have Multi-Terabyte Big Data

How much data does your organization collect and use for analytics?

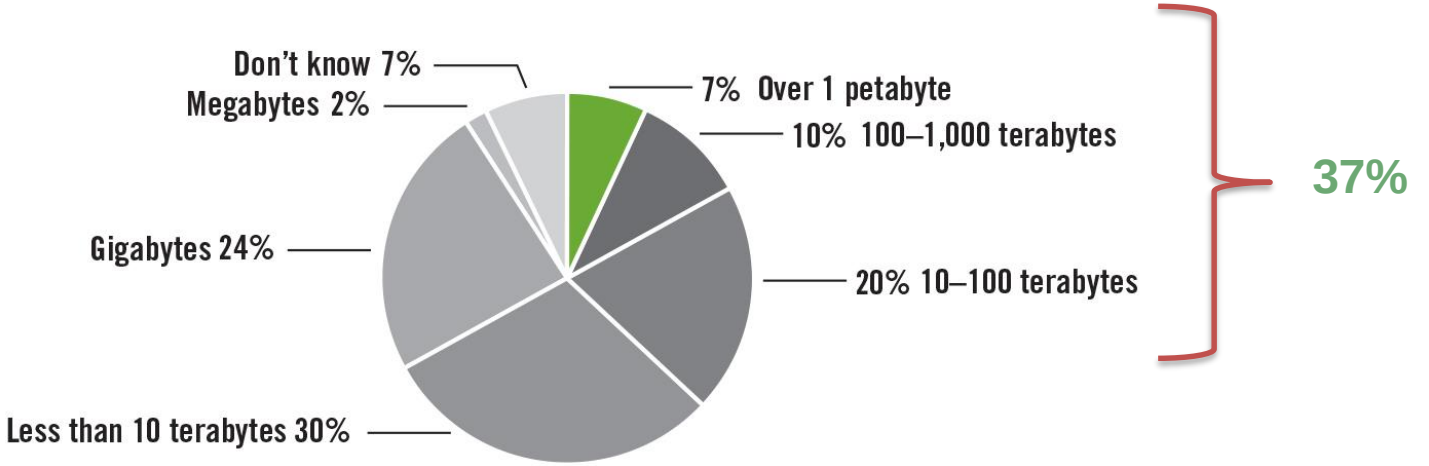


Figure 2. *Based on 370 respondents.*

Source: TDWI Best Practices Report on Big Data and Data Science, 2016

Big data is mostly structured, even just relational

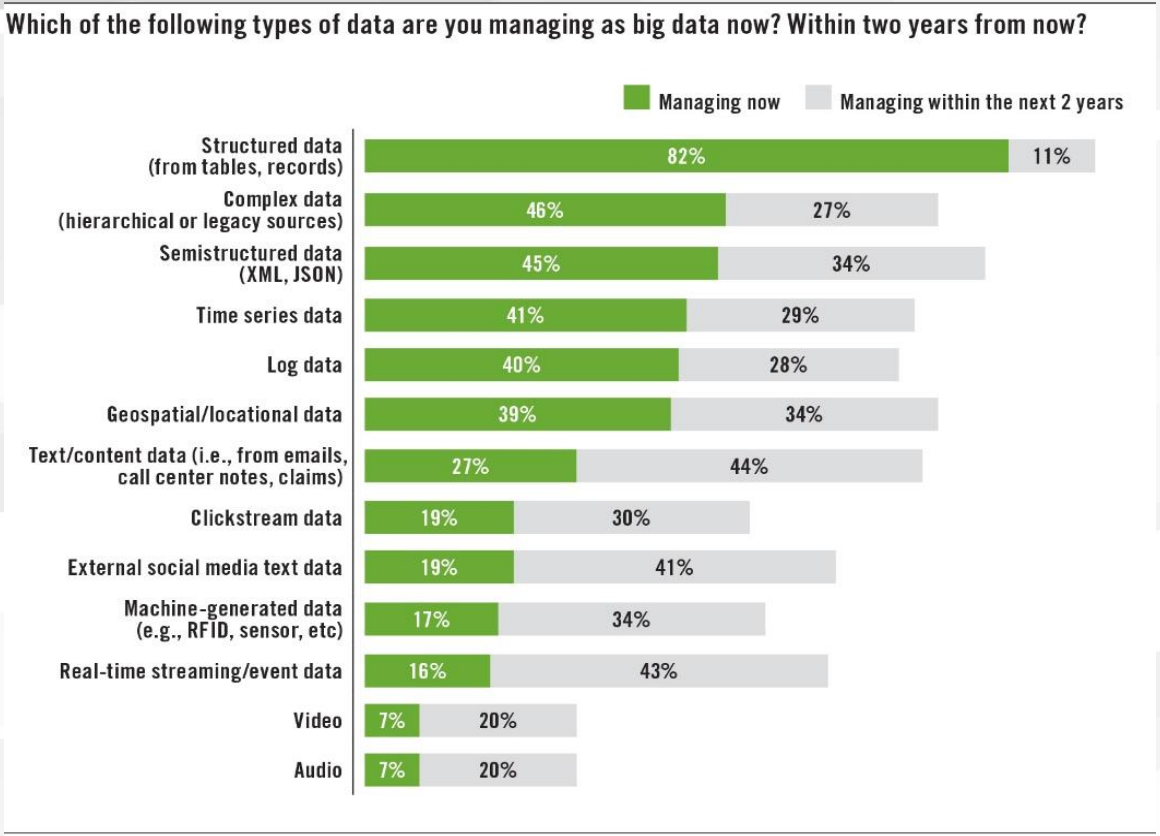


Figure 3. *Ordered by percentage managing each data type now. Remainder don't know or have no plans. Based on 370 respondents.*

Source: TDWI Best Practices Report on Big Data and Data Science, 2016

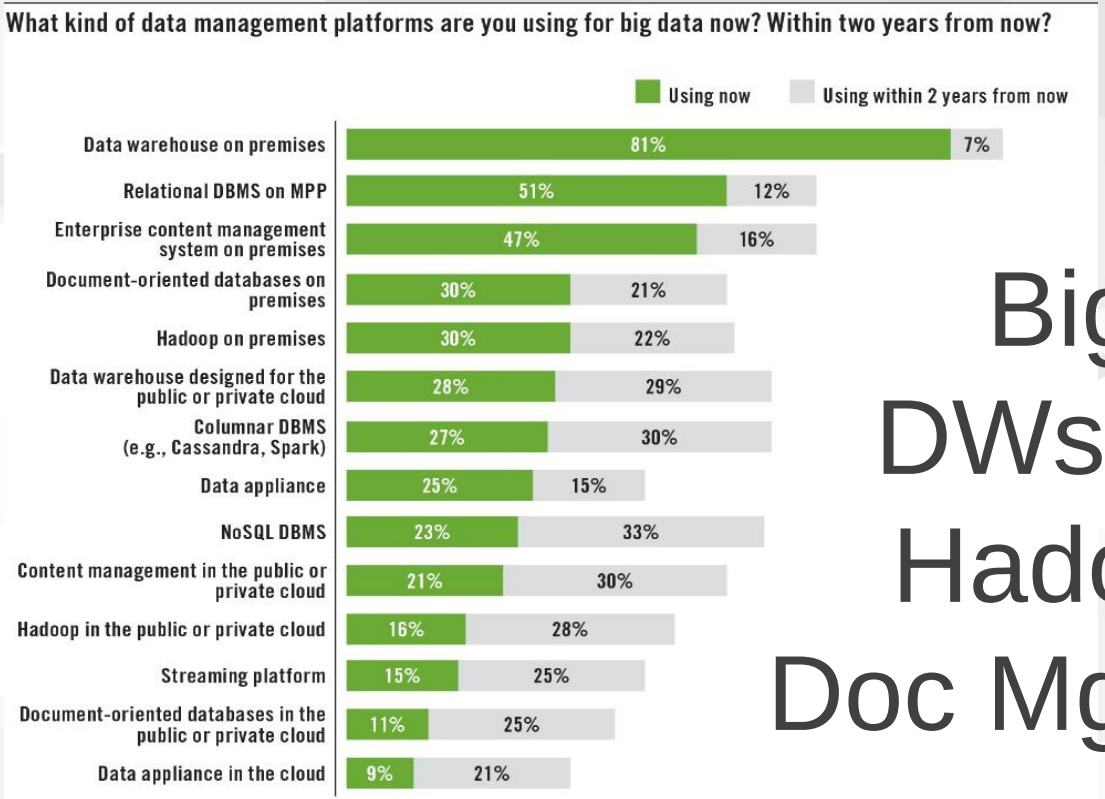


Figure 5. *Ordered by percentage using each data platform now. Remainder don't know or have no plans. Based on 338 respondents.*

Big data is on DWs, RDBMSs, Hadoop, Cloud, Doc Mgt Systems, etc.

Source: TDWI Best Practices Report on Big Data and Data Science, 2016

Seven Strategies for Gaining Maturity

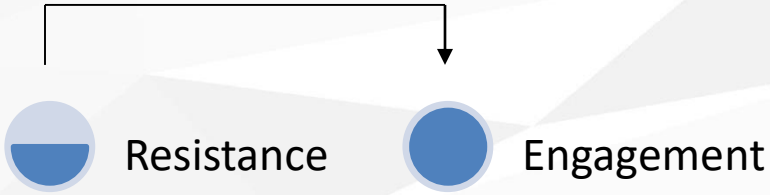
1. Gaining Business Buy-in Strategy
2. Organizational Strategy
3. Analytics Strategy
4. Data Management Strategy
5. Infrastructure Strategy
6. Governance Strategy
7. A “Visionary” Strategy

STRATEGY #1

GAINING BUSINESS BUY-IN

Business Buy-In

- Gather executive support
- Use POCs to show the difference
- Evangelize, socialize, be persistent
- Collaborate and communicate



Value of Executive Support

- Can set tone and vision; provide funding
- Aligns with leadership of CIO, VP Analytics, Chief Data, Analytics Officers
- Need to set expectations

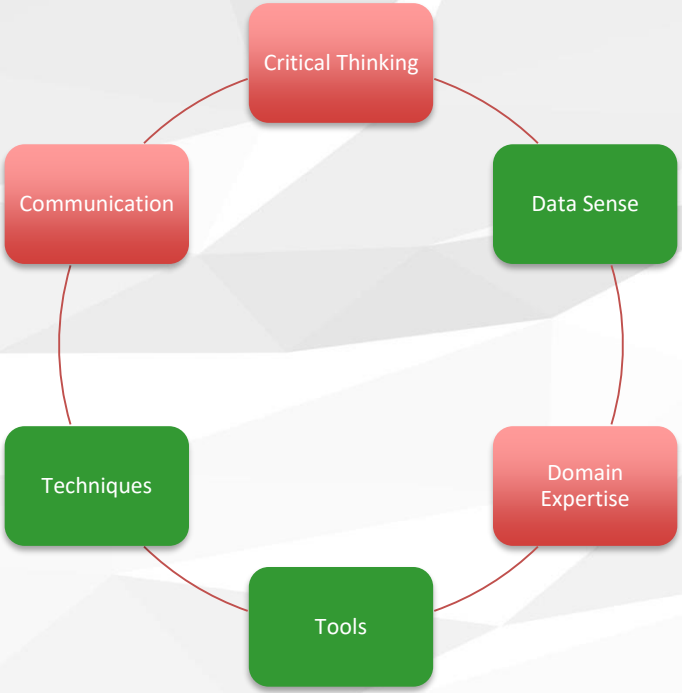
STRATEGY #2

ORGANIZATIONAL STRATEGY

Organizational Strategies

- Build talent, skill sets, teams
- Create a Center of Excellence or Competency Center

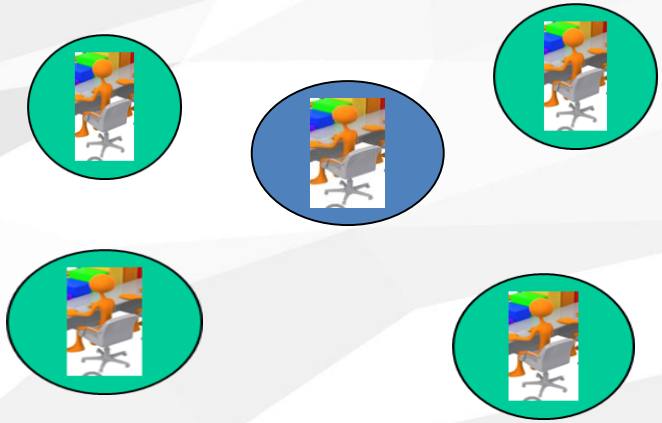
Skills Needed in the Team



TEAM STRUCTURES

Center of Excellence or Competency Center

Centralized



Distributed

STRATEGY #3

ANALYTICS STRATEGY

Analytics Strategies

- Expand the data mix
- Utilize multiple analytics techniques
  - Move beyond descriptive and predictive analytics to include prescriptive (actionable & automatic)
  - Consider the cloud
- Operationalize and embed advanced analytics
  - Goal of actionable analytics

STRATEGY #4

DATA MANAGEMENT STRATEGY

Mature by Expanding to New Data Types and Platforms, plus new Analytics Tools

- Prepare for semi- and unstructured data
  - Customer behavior, social media, JSON, text sources
  - Streaming, IoT
- Evaluate technologies
  - Hadoop & data lake
  - Analytics platforms
  - Data integration and prep tools
  - Cloud options
- Get ready for analytics of detailed data
  - OLAP-style aggregates, samples, etc., are still important
  - But big data analytics often needs huge volumes of detailed data
  - Save raw detailed source data, as it is extracted
  - Build data platform for it, as in the Data Lake

STRATEGY #5

INFRASTRUCTURE STRATEGY

Getting Ready for Increase Everywhere

- **Thinking growth**:
  Big data analytics success will breed more and larger projects
- Infrastructure concerns:
  - Performance and availability
  - Speed of access and query execution
  - Concurrency
  - Scalability for more users and analytics workloads – for both experimentation and operational decisions

- **Looking to the clouds**:
  As part of updating their infrastructure strategy, organizations should consider cloud computing and outsourcing

STRATEGY #6

GOVERNANCE STRATEGY

Big Data Analytics Governance Maturity

- Evaluate governance policies and rules for data lakes and cloud sandboxes
  - Common: Role-based access that assigns rights and accountability
- Solidify governance and controls over analytics model deployment
  - Models should be cataloged, managed, and monitored
- Tight, but not too tight: Make sure rules and policies are appropriate and essential
  - Otherwise, users will resort to “shadow” IT systems
  - Bring users and IT together for joint leadership over governance
  - Governance as an enabler

STRATEGY #7

AIM FOR “VISIONARY” LEVEL OF MATURITY

Checklist for Reaching Visionary Level

- ✓ Drive continuous innovation through application of big data analytics
- ✓ Increase business agility with big data analytics
- ✓ Develop a data management strategy that delivers detailed, diverse data
- ✓ Modernize the warehouse
- ✓ Unify data architecture and integrate analytics to support smart expansion
- ✓ Improve effectiveness of data governance as big data analytics matures

See "The Road to Becoming a Visionary Big Data Analytics Organization, TDWI Checklist Report 2016 and part of this series.

VERTICA

tdwi
TRANSFORMING DATA WITH INTELLIGENCE™

The Five Ws of Data Warehouse Modernization

What, Why, When, How, and Who

Philip Russom

Sr. Director of Research, Data Management

August 1, 2017

1. WHAT is Data Warehouse Modernization?

- Scenarios range widely:
  - From simple addition of new sources & subjects
  - To dramatic cases, like DW platform rip-and-replace
  - Also, upgrades; tweaks for scale and speed; logical architecture
- Synonyms: DW augmentation, automation, optimization

2. WHY should we do Data Warehouse Modernization?

- *Business* Modernization should be ultimate goal
  - Biz must grow, be more profitable
  - Adapt to a changing market, economy, customer base, competition, use of tech…
- Business management should set the goals
  - Communicate goals to whole organization
  - Interpret goals for individual departments
- IT and Data Mgt teams support business goals

What are the top business tasks that would benefit from data warehouse modernization?

SOURCE: 2016 TDWI Report, *Data Warehouse Modernization*, top half of Figure 8. tdwi.org/bpreports

3. WHEN do we do
Data Warehouse Modernization?

- When a DW needs to broaden
  - Greater scale, speed, capacity
- When DW gets new tech requirements
  - Real time, virtualization, unstruc'd data, advanced analytics
- When DW design becomes outmoded
  - To improve dimensions, architecture
- When the DW's platform has outlived its usefulness
  - Rip-and-replace: migrate data from old to new platform

4. HOW do we do Data Warehouse Modernization?

- By augmenting the existing DW wo/replacing it
  - Protect DW investment; extend DW's life
- By diversifying the DW's tool/platform portfolio
  - Modern data warehouse environment (DWE) has diverse data platforms for diverse data
  - Hadoop, lakes, columnar, appliances, graph
- By manageable steps, instead of a big bang
  - Quarterly release schedule is norm for all DW work, not just mod's

DW Modernization Strategies

- Most common strategy – DW Augmentation (42%)
  - Add more data platforms to DWE, to complement existing core DW
- For only 15%, replacing DW's primary data platform has been a strategy
- 24% modernize on per case basis; 14% don't have a strategy

SOURCE: 2016 TDWI Report, *Data Warehouse Modernization*, Figure 11, 473 respondents. tdwi.org/bpreports

5. WHO does
Data Warehouse Modernization?

- Obviously, data mgt professionals are required
  - Specialists in warehousing, integration, analytics, reporting; modeling, architecture, metadata
- People & processes for data gov & stewardship
  - Align DW mod w/Biz goals, compliance, data standards, IT standards
- Affected parties must be part of the process
  - Misc data consumers, user constituencies, biz mgrs

The Five Ws of DW Modernization

1. What is it?
   - From daily work to augmentation to rip and replace
2. Why do it?
   - To support biz goals, analytics, real time, capacity
3. When do we do it?
   - When biz needs it, at DW lifecycle stages, on quarterly schedule
4. How do we do it?
   - Usually by augmenting existing DW, rarely by rip-and-replace
5. Who does it?
   - DW & other tech teams; coord with affected parties (data consumers, biz mgrs)

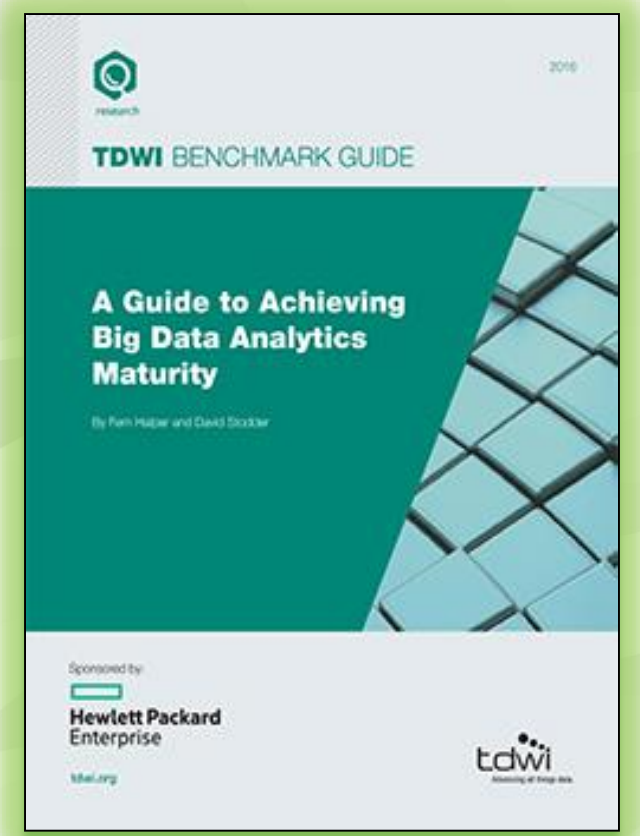
PHILIP RUSSOM

Thanks for listening!

We'll have group Q&A later today.

Read our TDWI Report

- This presentation includes material from a new report
- Download the free report
- http://bit.ly/2kbjpzY



Learn More in Anaheim!

TDWI Conference

"Modernize. Analyze. Visualize."

Keynotes, Classes, Networking, & More

Anaheim, CA | August 6-11, 2017

http://www.tdwi.org/anaheim

*

TDWI Leadership Summit

"Achieve Faster Business Value with Analytics and BI"

Anaheim, CA | August 7-8, 2017

http://www.tdwi.org/anaheimsummit

Speaker Roundtable and Q&A

- Philip Russom, TDWI
  - prussom@tdwi.org
- Jeff Healey, HPE Vertica
  - jeff.a.healey@hpe.com
- Daniel Gale, Simpli.fi
  - daniel@simpli.fi

VERTICA

tdwi
TRANSFORMING DATA WITH INTELLIGENCE™

TDWI SOLUTION SPOTLIGHT

Developing a Strategy for Advancing Faster with Big Data Analytics

Dallas, Texas

August 1, 2017